

## THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Texas Tech University and Halliburton Energy Services, Inc.

THE THE HAS BEEN PRESENTED TO THE

#### Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY TEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC PLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE WITTO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR TING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE URPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY ID BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF THE PLANT VARIETY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

**GUAR** 

'Matador'

In Vestimons Mucrost, I have hereunto set my hand and caused the seal of the Plant Inviety Protection Office to be affixed at the City of Washington, D.C. this twenty-third day of March, in the year two thousand and five.

Secretary of Agriculture

Steest:
Commissioner
Plant Variety Protection Off

#### INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filling fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office Telephone: (301) 504-5518 FAX: (301) 504-5291

Homepage: http://www.ams.usda.gov/science/pvpo/pvpindex.htm

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 http://www.ams.usda.gov/lsg/seed.htm.

#### ITEM

- 19a. Give:
- (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
- (2) the details of subsequent stages of selection and multiplication;
- (3) evidence of uniformity and stability; and
- (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
  - (1) identify these varieties and state all differences objectively;
  - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
  - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
- 20. If "Yes" is specified (seed of this variety be sold by variety name only, as a class of certified seed), the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
- 23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
- 24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.
- 22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)
- 23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)
- 24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is o581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

#### **EXHIBIT A**

**VARIETY NAME: HES 1205** 

Genealogy

Origin PI 340246, introduced from New Delhi, India, 1910.

#### **Breeding History**

PI 340246 was planted in the plot number 1610 summer 1998 at Texas Tech University (TTU) Erskin Research Farm. TTU field evaluation identified this introduction as a branching type line, uniform in morphology, late maturity, with high seed yield. Individual plants were selected based upon plant type and seeds were harvested separately. Gum testing (protocol confidential) identified plants with gum content higher than 38.1%. Two space plants were selected and seeds were harvested separately, forming the breeding lines 1610-1 and 1610-2.

In 1999, seeds of 1610-1 and 1610-2 were sown separately as high gum selections in randomized complete block designs with four replications at two locations: TTU Erskin Research Farm and New Deal Research Farm. The breeding lines were evaluated during the growing season with the commercial varieties 'Kinman' and 'Lewis' as controls. The 1610-1plot was highly uniform in morphology, matured later than 'Lewis' and 'Kinman', high seed yield, tolerant to virus and bacterial diseases. This line is designated as 'HES 1205'. Seeds within a plot were bulk harvested.

In 2000 and 2001, 'HES 1205' was planted in variety comparison nurseries in randomized complete block designs with four replications (with Lewis and Kinman as controls). Agronomic data were taken. Seed yield was evaluated. Gum content was checked following the same protocol as in 1998. Seeds within a plot were bulk harvested. A large plot of 'HES 1205' was planted under isolated conditions for seed increase, yielding 90 pounds.

#### Statement of Uniformity and Stability

'HES 1205' has been reproduced and judged stable for the past three generations. Variety 'HES 1205' is uniform for all traits as described in Exhibit C (Objective Description of Variety). 'HES 1205' shows no variants other than what would normally be expected due to environment.

EXHIBIT B

**VARIETY NAME: HES 1205** 

### **Statement of Distinctness**

'HES1205' is a late line, maturing about 130 days after planting (June1), compared to a 100-day maturity for the four commercially available varieties 'Lewis', 'Kinman', 'Santa Cruz', and 'Esser'. A mid-October harvest date fits the growing season on the South Plains. Variety 'HES 1205' differs significantly from the above four commercial varieties: 'HES 1205' exhibiting pubescent leaf surface, whereas the four commercial varieties have glabrous leaf surface.

'HES 1205' exhibited tolerance to viral and bacterial diseases, high seed yield, pubescent leaf surface, branching-type growth, plant height 92.93cm, non-lodging, long pods (5.72cm) and medium size seeds (8.47g/100 seeds). Seed yield of 'HES 1205' was compared with commercial varieties of 'Kinman' and 'Lewis' at Erskin and New Deal farms. The seed yield of variety 'HES 1205' was 32.22% greater than that of Lewis and 83.24% greater than that of Kinman on the three year average.

A comparison of characteristics of 'HES 1205', 'Lewis' and 'Kinman' is summarized in the table attached.

# OBJECTIVE DESCRIPTION OF VARIETY Guar (<u>Cyamopsis tetragonoloba</u> (L.) Taub)

NAME OF APPLICANT (S)  TEXAS TECH UNIVERSITY and Halliburton Energy Services, Inc.	VARIETY NAME OR TEMPORARY DESIGNATION HES 1205			
ADDRESS (Street and No, City, State, and Zip code)	FOR OFFICIAL USE ONLY			
Mr. K. Lance Anderson Ph: 806 742 4103	PVPO NUMBER			
Licensing Specialist Fax: 806 742 4102	I VI O NOMBER			
Technology Transfer and Intellectual Property				
Texas Tech University	200400235			
Lubbock TX 79409-2007				
	<u> </u>			
COMPARISON VARIETY - For Use Below				
1. Variety Lewis 2. Varie	ty Kinman			
PRIMARY AREA OF ADAPTATION				
1 = Northwest 2 = Northcentral 3 = N	lortheast			
0				
4 = Southeast 5 = Southwest 6 = S	outnern Plains			
7 = Intermountain				
MATURITY (Fall at >050), goods would be becaute the	aloution)			
MATURITY (Fall, at >95% seeds ready to harvest after p	olanting)			
1 3 0 Days	·			
<del></del>				
3 0 Days later than 1				
3 0 Days later than 2 Comparison variety				
GROWTH HABIT (at 50% bloom)				
3 1 = Erect 2 = Basal Branching (Lewis) 3 = Branching (Kinman)				
_ ,	,			
DI ANT DIMENSIONS (at 500/ bl)	:			
PLANT DIMENSIONS (at 50% bloom)				
9 2 . 9 cm high				

	cm taller than	)	200400
	height same as	Comparison variety	
1 9 . 2	cm taller than2	Comparison variety	eres ( )
2 Ty	pe: 1 = Determinate 2 = Ind	eterminate (Lewis and K	(inman)
LEAVES 3 Shape:	1 = Linear 2 = Oblong 3 =	Ohovate 4 = Other (s	enecify)
	1 = Glabrous (Lewis and Kinma		
1 Color:	1 = Blue-green 2 = green		
RACEME 1	1 = Continuous (Lewis and Kinr	nan) 2 = Discontii	nuous
PODS 0 % Shat		(1-10%) 2 = Medium	(11-30%)
	Lower than	11 (>30%)	
	<del></del>	mparison Variety	
	Higher than	inpulicon variety	
5 . 7 2	mm long		
0 . 2 6	mm langer than1		
	Length same as	Comparison Variet	:у
0 . 8 5	mm longer than2		
8 . 4 7	Seeds/Pod		
1 . 0 1	More than	1	
<u> </u>	Same as	Comparison Va	ariety
3 . 4 8 Mo	re than	2	

**SEED** 

Shape: 1 = Oval 2 = Round (Lewis and Kinman) 3 = Other (specify)\_\_\_\_

Color: 1 = Peach 2 = Light gray (Lewis and Kinman) 3 = Gray

4 = Dark purple

CHEMICAL COMPOSITION (One month after harvest)

Gum content (fg%)

Applicant 3 5 . 1

Lewis

3 5 . 8

Kinman

3 6 . 0

### **DISEASE AND INSECTS**

Virus (%)

Applicant 1 . 5

Lewis 0 . 0

Kinman 2 2 . 9

Bacterial wilt (rating)

Applicant 2 6

Lewis 3 0

Kinman 4 7

## Alternaria leafspot (%)

Α	pplicant	0 .	0	
	ewis	0 .	0	
K	inman [	0 .	0	]
Powdery Mildew	(%) .			_
-	pplicant	0 .	0	
	ewis [	0 .	0	
К	inman [	0 .	0	]
				-

YIELD (lbs per acre)

Applicant

1 4 4 8

Lewis

1 0 2 5

Kinman

8 2 9

ADDITIONAL DESCRIPTION (Use additional sheets as required)

REPRODUCE LOCALLY, include form number and edition date on all	reproductions.	DRM APPROVED - OMB No. 0581-0055			
U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE  EXHIBIT E	Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).				
STATEMENT OF THE BASIS OF OWNERSHIP	confidential until the certificate is issue	54 (1 0.0.0. 2420).			
1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION	3. VARIETY NAME			
(I) Texas Tech University and (2) Halliburton Energy	OR EXPERIMENTAL NUMBER HES 1205	Matador			
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)	5. TELEPHONE (include area code)	6. FAX (Include area code)			
(1) Texas Tach Univ., Lubbock, TX 79409-2007	(580) 251-3125	(580) 251-3917			
(2) Halliburton Energy Services, Inc. 2600 So. 2nd Street, Duncan, OK 735386 are 2004	7. PVPO NUMBER	COM COM			
2000 So. Zina Siroti, Zinomi, Sir 1995 C. All Linder	2004002	3 3			
8. Does the applicant own all rights to the variety? Mark an "X" in the					
9. Is the applicant (individual or company) a U.S. national or a U.S. b	ased company? If no, give name of co	ountry. YES NO			
10. Is the applicant the original owner? YES	NO If no, please answer one o	f the following:			
a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?  YES  NO  If no, give name of country  b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?  YES  NO  If no, give name of country  11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):  The Matador seed was developed under a Halliburton funded research grant to the University by employees of the original owners Texas Tech University and Halliburton Energy Services, Inc.					
PLEASE NOTE:					
Plant variety protection can only be afforded to the owners (not licens	ees) who meet the following criteria:	·			
<ol> <li>If the rights to the variety are owned by the original breeder, that penational of a country which affords similar protection to nationals of</li> </ol>	erson must be a U.S. national, national of the U.S. for the same genus and specie	f a UPOV member country, or es.			
<ol><li>If the rights to the variety are owned by the company which employ nationals of a UPOV member country, or owned by nationals of a c genus and species.</li></ol>	red the original breeder(s), the company country which affords similar protection to	must be U.S. based, owned by onationals of the U.S. for the same			
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.					
The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.					
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